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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Masaaki Aoki

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1423

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02/12/2004

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EXAMINER

DONOVAN, LINCOLN D

ART UNIT

PAPER NUMBER

2832

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/445,827

Applicant(s)

AOKI ET AL.

Examin r

Lincoln Donovan

Art Unit

2832

pw

-- The MAILING DATE of this c mmunication appears n the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4,8-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4,8-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art shown in figure 12a of Sakurai et al. (US 5,283,544) in view of Sakurai et al. the prior shown in shown figure 12a of Sakurai et al. disclose a magnetic field generating device [figure 12a] having a pair of pole pieces (2) facing each other so as to form an air gap (4) and generating a magnetic field therein.

The prior art shown in figure 12a of Sakurai et al. disclose the instant claimed invention except for: the specific design of the pole pieces.

Sakurai et al. discloses a pole piece main component formed from a plurality of laminated blocks [13, figure 2] comprising silicon sheets [see abstract], a magnetic annular profusion [12] disposed on the side of the main component and wherein the silicon sheets in are laminated toward the outer face of the pole piece and divided into a plurality of sections in the circumferential direction [figure 1b].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the pole piece design of Sakurai et al. in the prior art shown in figure 12a of Sakurai et al., for the purpose of reducing the formation of eddy currents and residual magnetism.

The particular thickness of the laminae would have been an obvious design consideration based on the desired field strength.

Regarding claim 4, Sakurai et al. discloses the silicon steel sheets being divided into a plurality of sections in the circumferential direction [figure 1b].

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art shown in figure 12a of Sakurai et al. in view of Sakurai as applied to claim 1 above, and further in view of Laskaris et al. (US 5,874,880).

The prior art shown in figure 12A of Sakurai et al., as modified, discloses the instant claimed invention except for the laminated silicon sheets supported by a non-magnetic support member with high electrical resistance.

Laskaris et al. disclose a pole piece used in an MRI apparatus having laminated silicon sheets supported by a non-magnetic support member [48] with high electrical resistance.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the laminated silicon sheets of the prior art shown in figure 1 of Sakurai et al., as modified, be supported by a low-magnetic support member with high electrical resistance, as suggested by Laskaris et al., for the purpose of preventing undesired effects on the gradient magnetic fields.

Miyamoto et al. (US 4,818,966).

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art shown in figure 12a of Sakurai et al., as applied to claim 12 above and further in view of Miyamoto et al. [US 4,818,966]

The prior art shown in figure 1 of Sakurai et al., as modified, disclose the instant claimed invention except for: the protrusion being formed of laminated sheets, the particular ratios of material used and a permanent magnet support structure.

Miyamoto et al. discloses a magnetic field generating device [figure 6] having a pole member supported about laminated protrusions [60c] mounted on a permanent magnet structure [61].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the mounting design of Miyamoto et al. for the prior art shown in figure 1 of Sakurai et al. in view of Sakurai et al., as suggested by Miyamoto et al., for the purpose of enhancing field uniformity and improving magnetic field intensity.

The particular ratio between the surface area and the sides of the protrusion would have been an obvious design consideration based on the specific material used for the field generator, desired field strength and specific application.

Response to Arguments

Applicant's arguments filed 10-28-03 have been fully considered but they are not persuasive. Applicant argues that the art cited by the examiner does not disclose the claimed arrangement employing a permanent magnet field generating structure with the main component directly attached to the permanent magnet and the main component being formed of sheets laminated in a direction facing the pole pieces. Examiner disagrees. Miyamoto et al. discloses a structure including a main component including laminated sheets directly mounted on a permanent magnet, see figure 1. Sakura et al., as acknowledged by applicant, discloses the pole structure laminations being either

Art Unit: 2832

parallel or transverse to the air gap. As claimed, the combination of Sakura et al. with Miyamoto et al. discloses the invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lincoln Donovan whose telephone number is (571) 272-1988. The examiner can normally be reached on M-F 8:30-5:00.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2832

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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